

**REVIEW OF THE GENUS *DUNGOORUS* CARNE (COLEOPTERA:
SCARABAEIDAE: RUTELINAE: ANOPLIGNATHINI)**

ANDREW B.T. SMITH

*Canadian Museum of Nature, Research Division, PO Box 3443, Station D, Ottawa, Ontario,
K1P 6P4, Canada. Email: asmith@mus-nature.ca*

Abstract

The genus *Dungoorus* Carne is reviewed and now contains two species: *D. murrumbullus* Carne and *D. frater* sp. n. An identification guide is given for the genus and both species, including descriptions, diagnoses and a key to species. Distributional data and a description of the female are presented for the first time.

Introduction

The ruteline beetle tribe Anoplognathini occurs only in Australia and the Neotropics. Phillip Carne last reviewed the Australian taxa in a series of papers published in the 1950s. In his main work on this group, Carne (1958) described many new taxa, including the monotypic genus *Dungoorus* Carne. He placed it in the subtribe Schizognathina and commented that it was similar to the genus *Saulostomus* Waterhouse. The description of *Dungoorus* and the new species *D. murrumbullus* Carne were both based on a single specimen without locality data [although Carne (1958) hypothesized that the specimen was collected in Queensland, based on other specimens he was familiar with bearing similar labels]. Since the original description, no new information has been published on this genus. Recently, I discovered further specimens in three collections. This paper reviews the genus *Dungoorus* based on these additional specimens and provides previously unknown information on this genus, including a description of females, reliable distributional data and the discovery of a new species.

Specimens were borrowed from and deposited in the following institutions (collections managers and/or curators listed in parenthesis). A total of 23 specimens formed the basis of this review. All specimens examined were labelled with a determination label or one of my red or yellow type labels. ABTS - Andrew B.T. Smith Collection, Ottawa, ON, Canada; ANIC - Australian National Insect Collection, CSIRO, Canberra, ACT (Tom Weir); CASC - California Academy of Sciences, San Francisco, CA, USA (David Kavanaugh, Roberta Brett); CMNC - Canadian Museum of Nature, Ottawa, ON, Canada (Robert Anderson, François Génier); QMBA - Queensland Museum, Brisbane, Qld (Geoff Monteith).

Genus *DUNGOORUS* Carne, 1958

(Figs 1-3)

Dungoorus Carne, 1958: 198, 218 [key to genera of Australian Rutelinae, original description]; Machatschke, 1965: 13, 47 [distribution, catalogue listing]; Machatschke, 1972: 297 [catalogue listing]; Cassis and Weir, 1992: 375 [catalogue listing]; Smith, 2003: 199 [checklist].

Type species. *Dungoorus murrumbullus* Carne, 1958, by original designation. Gender of genus: masculine.

Description. Length 11.7-14.8 mm, width 6.8-8.2 mm. Colour yellowish-brown. Body ovate, convex. *Head* (Fig 1-2): Dorsal surface moderately punctate on frons, densely punctate on clypeus; clypeus with erect, golden-brown setae. Clypeal apex strongly reflexed. Labrum reduced, apex without medial tooth or projection. Mandible plate-like, projecting well past apex of clypeus in dorsal view; apex and lateral margin strongly reflexed. Terminal maxillary palpomere in males greatly enlarged with elongate sulcus, approximately as long as antennal club. Terminal maxillary palpomere in females not greatly enlarged, much shorter than antennal club. Mentum constricted apically but not curved into oral cavity, without apical notch or tooth. Antenna with 9 antennomeres. *Pronotum:* Disc glabrous, moderately punctate. Marginal bead present laterally, absent medially on base and apex. *Elytron:* Surface glabrous; longitudinal striae poorly defined, densely punctate; without membranous border. Suture apically rounded, without acute spine or projection. *Pygidium:* Surface convex, smooth, setose apically; setae erect, golden brown. *Venter:* Thorax setose. Mesothoracic process not developed. Abdominal sternites sparsely setose. *Legs:* Protibia with 3 sharp, subequal teeth; apical spur absent. Tarsomeres 1-4 in males as wide or wider than long, cup-shaped. Protarsomere 1 in females long, approximately as long as protarsomeres 2-4. Protarsomeres 3-4 in males with weak internoapical stridulatory ridges. Protarsomere 5 in males with weak internomedial, stridulatory surface. Unguitractor plate laterally flattened with 2 setae. Modified tarsal claws in males thickened, elongate when compared with other claw, without teeth or bifurcations. Modified tarsal claws in females simple, not thickened or toothed.

Male genitalia. Phallobase not fused with parameres. Parameres weakly fused, longitudinally contiguous.

Diagnosis. *Dungoorus* is distinguished from all other genera of Anoplognathini by the following combination of characters: labrum reduced, apex without medial tooth or projection; mandible plate-like, projecting well past apex of clypeus in dorsal view and with apex and lateral margin strongly reflexed; terminal maxillary palpomere in males greatly enlarged, approximately as long as antennal club; mentum flat, constricted apically but not curved into oral cavity; antenna with 9 antennomeres; clytron without membranous border, glabrous; mesothoracic process absent; protibia without spur; tarsomere 5 with simple claws; unguitractor plate with 2 setae; male genitalia with phallobase and parameres not fused; parameres with apices close together (not widely separated), not fused.

Distribution. Central and southern Northern Territory to southwestern Queensland, Australia (Fig. 3).

Key to species of *Dungoorus*

- 1 Frontoclypeal suture a well-defined, elevated ridge (Fig. 1); clypeal apex in males evenly rounded; mesotarsomere and metatarsomere 1-4 in males compact, as wide as long. Queensland *D. murrumbullus* Carne
- Frontoclypeal suture absent except at lateral margins (Fig. 2); clypeal apex in males bidentate, teeth at lateral edges; mesotarsomere and metatarsomere 1-4 in males strongly compact, wider than long. Northern Territory *D. frater* sp. n.



Figs 1-2. *Dungoorus* spp. (1) *Dungoorus murrumbullus* head and pronotum; (2) *Dungoorus frater* head and pronotum.

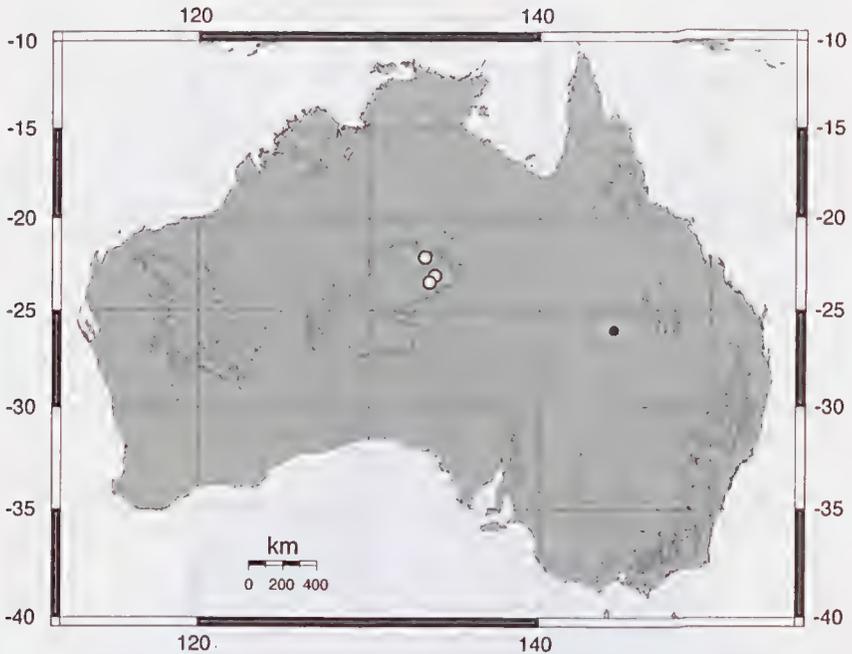


Fig. 3. Known distribution of *D. frater* (white circles) and *D. murrumbullus* (black circle).

Dungoorus murrumbullus Carne, 1958

(Figs 1, 3)

Dungoorus murrumbullus Carne, 1958: 219 [original description]; Machatschke, 1965: 47 [catalogue listing]; Machatschke, 1972: 297 [catalogue listing]; Cassis and Weir, 1992: 375 [catalogue listing]; Smith, 2003: 199 [checklist].

Type material examined. *Holotype* ♂, labelled: (a) 'Type' (round label with red border, typeface); (b) 'Lea has not 13-12-18' (typeface and handwritten); (c) 'Not in coll. of S. Aus. Museum' (typeface); (d) 'QUEENSLAND MUSEUM' (pink label, typeface); (e) 'Prob. n. g. near Saulostomus Claws uneven Curious palpi' (handwritten); (f) 'Holotype of *Dungoorus murrumbullus*, sp.nov. P.B. Carne det., 1957' (handwritten and typeface); (g) 'DUNGOORUS MURRUMBULLUS CARNE, 1958 HOLOTYPE ♂' (red label, handwritten and typeface); (h) 'QM Reg. No. T.5533' (handwritten) [in QMBA]. Carne (1958) indicated that this species was described using a single specimen. He speculated that the specimen was collected in Queensland, based on the labels and his experience dealing with Queensland specimens examined by A.M. Lea. Type locality: Queensland, Australia.

Other material examined. QUEENSLAND: 1 ♂, Milroy (30 km N Quilpie; 26° 03'S, 144° 21'E) [in QMBA].

Diagnosis. Male (n = 2). Length 11.7-12.2 mm, width 6.8-7.5 mm. *Head:* Frons flat apically. Frontoclypeal suture complete, weakly elevated ridge. Clypeus concave, apex evenly rounded without lateral teeth. *Legs:* Tarsomeres 1-4 thickened, width approximately equal to length, cup-shaped.

Female unknown.

Distribution (Fig. 3). Southwestern Queensland, based on the holotype and one additional specimen in QMBA from Milroy, near Quilpie.

Temporal data. November (1).

***Dungoorus frater* sp. n.**

(Figs 2-3)

Types. *Holotype* ♂, NORTHERN TERRITORY: labelled 'Ti-Tree N.T. 30/12/1982 D.P. Carne At light' (handwritten) and 'Dungoorus murrumbullus Carne m det. T.A. Weir 1991' (handwritten and typeface) [in ANIC]. *Paratypes:* 2 ♀♀ [including allotype], same data as holotype except with 'f' instead of 'm' on the second label [in ANIC]; 12 ♂♂, 5 ♀♀, labelled 'AUSTRALIA: Northern Territory, 11 mi ne Yambah, nr Alice Springs, 625 m. 29 October 1962' (typeface) and 'Collectors: E.S. Ross D.Q. Cavagnaro' (typeface) [9 ♂♂, 2 ♀♀ in CASC; 1 ♂, 1 ♀ each in QMBA, CMNC and ABTS]; 1 ♂, labelled 'burrowing in soil below cattle dung CADNEY BORE 40 km NW ALICE SPRINGS 6-xii-1975 G. Griffin.' (handwritten), 'Dungoorus sp. DET. T. WEIR 1977' (handwritten), and 'Dungoorus murrumbullus Carne P.B. Carne det., 1977' (handwritten and typeface) [in ANIC]. Type locality: Ti Tree, Northern Territory, Australia (22° 08'S, 133° 16'E).

Description. Male [holotype]. Length 14.8 mm, width 8.1 mm. Colour yellowish-brown. Body ovate, convex. *Head:* Dorsal surface with depression from clypeus to apex of frons; depression setose with erect, golden-brown setae. Frontoclypeal suture absent except laterally. Clypeal apex strongly reflexed, bidentate with lateral teeth. Terminal maxillary palpomere greatly enlarged with elongate sulcus, approximately as long as antennal club. Terminal labial palpomere enlarged with elongate sulcus, less than half as long as terminal maxillary palpomere. *Pronotum:* Widest near apex; disc glabrous, moderately punctate. *Elytron:* Surface glabrous; longitudinal striae poorly defined, densely punctate; without membranous border. Suture apically rounded, without acute spine or projection. *Pygidium:* Surface convex, smooth, setose apically; setae erect, golden brown. *Legs:* Protibia with 3 subequal teeth. Mesotibia and metatibia robust, thickest medially and apically. Tarsomeres 2-4 greatly thickened, wider than long, cup-shaped. Protarsomeres 3-4 with weak internoapical stridulatory ridge. Protarsomere 5 with weak internomedial stridulatory surface. Modified tarsal claws thickened and elongate when compared with other claw, without teeth or bifurcations. *Male genitalia:* Phallobase slightly longer than length of paramere. Paramere with elevated apical and apicolateral margins; apex strongly deflexed.

Female [allotype]. Length 14.8 mm, width 8.2 mm. As holotype except in the following respects. *Head*: Clypeal apex strongly reflexed, evenly rounded without lateral teeth. Terminal maxillary palpomere not greatly enlarged, without sulcus. Terminal labial palpomere not enlarged, without sulcus. *Legs*: Tarsomeres 2-4 thickened, length approximately equal to width. Protarsomeres 3-4 and protarsomere 5 without stridulatory surfaces. Tarsal claws not modified or thickened; paired claws weakly asymmetrical.

Variation. Male (n = 13). Length 12.4-14.8 mm, width 7.4-8.2 mm. Female (n = 6). Length 12.8-14.8 mm, width 6.9-8.2 mm. The paratypes do not differ significantly from the holotype and allotype.

Etymology. *Frater* is the Latin word for brother and this species has a very similar gestalt to *D. murrumbullus*. According to Carne (1958), *Dungoorus* is derived from the aboriginal word meaning 'a stranger.' If the first species described in this genus is a stranger, then this second species must be that stranger's brother!

Distribution (Fig. 3). Known from the following localities in southern Northern Territory, Australia: Cadney Bore (40 km NW Alice Springs; 23° 29'S, 133° 31'E), Ti Tree (22° 08'S, 133° 16'E) and Yambah (17.6 km NE; 23° 07'S, 133° 49'E).

Temporal data. October (17), December (4).

Acknowledgements

I thank David Kavanaugh (CASC) and Tom Weir (ANIC) for the loan of specimens. I also greatly appreciate the encouragement and assistance of Geoff Monteith and Peter Allsopp in studying Australian scarabs. This publication was supported, in part, by an NSF/BS&I grant (DEB-0342189) and an NSERC-PDF award to the author.

References

- CARNE, P.B. 1958. A review of the Australian Rutelinae (Coleoptera: Scarabaeidae). *Australian Journal of Zoology* 6(2): 162-240.
- CASSIS, G. and WEIR, T.A. 1992. Rutelinae, pp 359-382, in: Houston, W.W.K. (ed.), *Zoological Catalogue of Australia. Vol. 9, Coleoptera: Scarabaeoidea*. Australian Government Printing Services Press, Canberra; 544 pp.
- MACHATSCHKE, J.W. 1965. Coleoptera Lamellicornia. fam. Scarabaeidae, subfam. Rutelinae, section Rutelinae Orthochilidae. *Genera Insectorum* 199^c: 1-145.
- MACHATSCHKE, J.W. 1972. Scarabaeoidea: Melolonthidae, Rutelinae. *Coleopterum Catalogus Supplementa* 66(1): 1-361.
- SMITH, A.B.T. 2003. A monographic revision of the genus *Platycoelia* Dejean (Coleoptera: Scarabaeidae: Rutelinae: Anoplognathini). *Bulletin of the University of Nebraska State Museum* 15: 1-202.